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The Impact of Digital Transformation on the Degree of Internationalization of Chinese Family Firms

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[Abstract]

Amid the wave of the digital economy, the strategic coordination between digital transformation and internationalization has become a key agenda for family firms. Using China's listed family enterprises during 2013–2023 as the research object and drawing on 20,642 firm-year observations from the CSMAR database, this study employs Tobit regression models to examine the impact of digital transformation on the degree of internationalization (DOI) and the moderating roles of family involvement and second-generation involvement. The results show that digital transformation significantly accelerates internationalization by increasing the number of overseas subsidiaries and expanding the breadth of host-country coverage. Family involvement exerts a negative moderating effect on the positive relationship between digital transformation and internationalization—through strengthening socioemotional wealth (SEW) preferences, suppressing exploratory innovation output, and shaping board governance structures. By contrast, second-generation involvement produces a significant positive moderating effect by enhancing risk-taking capacity, introducing a global vision, and promoting the inheritance of digital capabilities. These findings provide theoretical support and practical guidance for designing digital-transformation pathways, implementing internationalization strategies, and improving intergenerational governance in family firms.

▸ **Key words**: digital transformation, family firms, internationalization, family involvement

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[요 약]

디지털 경제의 물결 속에서 가족기업의 디지털 전환과 국제화 전략의 정합성은 핵심 의제로 부상하고 있다. 본 연구는 2013–2023년 중국 상장 가족기업을 대상으로 CSMAR 데이터베이스의 20,642개 기업-연도 관측치를 활용하여, 토빗 회귀모형을 통해 디지털 전환이 국제화 정도(DOI)에 미치는 영향과 가족 관여 및 2세 관여의 조절효과를 실증적으로 검증하였다. 분석 결과, 디지털 전환은 해외 자회사 수의 증가와 진출국 범위의 확대를 통해 국제화를 유의하게 가속한다. 가족 관여는 사회정서적 부(SEW) 선호의 강화, 탐색적 혁신 산출의 억제, 그리고 이사회 지배구조에 대한 영향이라는 경로를 통해 디지털 전환과 국제화 간의 정(+)의 관계를 약화시키는 부(-)의 조절효과를 보였다. 반면 2세 관여는 위험감수능력 제고, 글로벌 시야의 도입, 디지털 역량의 승계를 통해 유의한 정(+)의 조절효과를 나타냈다. 이러한 결과는 가족기업의 디지털 전환 경로 설계, 국제화 전략의 실행, 그리고 세대 간 승계·거버넌스 개선을 위한 이론적 근거와 실천적 시사점을 제공한다.

▸ **주제어**: 디지털 전환, 가족기업, 국제화, 가족 관여

I. Introduction

As the world's fifth major form of the new economy, the digital economy is irreversibly reshaping national socio-economic development patterns. In China, the digital economy has been advancing under a pronounced strategic framework and has become a key pillar supporting the Digital China initiative. As the core actors in economic activity, enterprises increasingly face digital transformation as a compulsory task. By leveraging digital management to optimize end-to-end processes—including research and development, production, administration, and services—enterprises can enhance information feedback efficiency, unlock the empowering value of data as a production factor at the micro level, and build data-driven and agile operating systems. Addressing these challenges constitutes a critical task that enterprises must confront amid the ongoing wave of the digital economy.

Having endured a century of transformation, Chinese family enterprises experienced a renewal in the 1980s and have since become a vital pillar of the national economy. They not only generate substantial employment opportunities and tax revenues, but also serve as the core carrier of vitality within the private sector, playing an irreplaceable role in promoting industrial upgrading and stabilizing economic growth. Selecting family firms as the core focus of this study carries both significant theoretical implications and practical relevance. From a practical perspective, the defining feature that distinguishes family firms from non-family firms lies in the intertwining dual attributes of "family" and "enterprise." Their strategic decision-making therefore often reflects both the pursuit of economic interests and the objective of preserving family vision and legacy. As a strategic transformation characterized by high investment, high risk, and a long time horizon, digital transformation poses severe challenges to family firms in terms of resource allocation, governance structures, and intergenerational succession. Meanwhile, amid intensifying global competition, the internationalization process of family firms not only confronts traditional challenges such as market barriers and cultural differences, but also increasingly relies on digital technologies to overcome developmental bottlenecks. Accordingly, examining the interactive relationship between digital transformation and internationalization exhibits strong practical relevance for guiding family firms toward

long-term and sustainable development. From a theoretical perspective, existing studies on digital transformation and firm internationalization predominantly focus on non-family firms, thereby overlooking the distinctive governance logic of family firms, where ownership and management are highly overlapping and the depth of family involvement substantially shapes strategic choices. Given the widespread presence and significant economic contributions of family firms worldwide, examining the interactive mechanisms between digital transformation and internationalization in family firms constitutes a necessary extension of corporate strategic management theory and helps fill the theoretical gap in research on family firm internationalization in the context of the digital economy. In recent years, with the accelerated innovation of technologies such as the Internet, artificial intelligence, big data, and blockchain, economic actors and social organizations have become deeply embedded in the digital technology ecosystem. To achieve long-term and sustainable development amid the wave of the digital economy, family firms have increasingly initiated digital transformation. Research indicates that digital transformation can adjust firm strategies through digital technologies, thereby reshaping business processes, organizational structures, and business models [1]. At the same time, by introducing advanced digital technologies, firms can optimize production processes, organizational management, and innovation output [2], reduce organizational information redundancy, break down data silos, and improve digital standardization systems, ultimately realizing the empowering value of data for business operations. These findings demonstrate a close linkage between digital transformation and firm development.

The interactive relationship between digital transformation and internationalization strategies in family firms has attracted growing scholarly attention. Existing studies have primarily focused on dimensions such as intergenerational succession, the extent of family involvement in top management teams, and internationalization strategies [3,4]. With the advancement of China's Belt and Road Initiative and the new development paradigm of dual circulation, the internationalization trajectory of family firms has become increasingly evident, while the digital economy and digital transformation are endowing their internationalization with new characteristics. Although research on the internationalization of family firms has developed an established theoretical framework over the past four decades and family firms are widely prevalent worldwide, scholarly discussion of their contributions within the digital economy remains insufficient [5]. Existing international studies generally argue that digital transformation can accelerate the implementation of internationalization strategies in family firms, whereas related empirical research in China remains constrained by insufficient consideration of institutional contexts. Given the distinctive institutional environment and cultural foundations of Chinese family firms, examining the impact of digital transformation on their internationalization holds substantial practical significance.

Digital transformation introduces uncertainty to family firms' internationalization strategies. The business-model and organizational changes propelled by the digital economy make digital transformation a critical lever for responding to digital disruption. China's 20th CPC National Congress explicitly called for accelerating the digital transformation of traditional industries and promoting the integration of the digital and real economies; however, research on the economic consequences of family firms' digital transformation remains thin—particularly the lack of a systematic theoretical analysis of its impact at the level of internationalization strategy. Against this backdrop, this study develops a mechanism model linking digital transformation to internationalization and conducts empirical tests using data on Chinese family firms. Recognizing that the heterogeneous attributes of family firms

are central to strategic choices, we first examine—through the lens of ownership and managerial involvement—the moderating effect of family involvement on the relationship between digital transformation and internationalization. Second, situating the analysis in the ubiquitous context of intergenerational succession, we investigate the distinctive impact of second-generation involvement on this relationship and validate it with data. As a salient manifestation of family involvement, second-generation participation not only embodies the firm's succession vision but also provides important guidance for the synergistic development of digital transformation and internationalization strategy.

Research on family enterprises has developed a mature theoretical edifice, and the internationalization of family firms likewise enjoys legitimacy and authority as a scholarly domain. This study advances the literature in three respects. First, addressing the relative paucity of work at the intersection of digital transformation and internationalization, we construct a theoretical pathway model that extends the research frontier. Second, in contrast to the international literature, domestic studies often lack attention to institutional context; our inquiry grounded in the Chinese setting enriches the localization of theory. Third, by unpacking the moderating roles of family involvement and second-generation involvement, we reveal the complex decision logic of family firms and provide theoretical support for governance practice.

In the digital-economy era, firms widely confront the challenge of digital transformation[6]. Family enterprises must adopt a scientifically informed view of transformation pathways and embed digital technologies in phases to achieve end-to-end optimization while mitigating transformation risk. Digital transformation yields multidimensional benefits: at the managerial level, it enhances efficiency, reduces communication barriers, and strengthens customer-relationship management; at the commercial level, it stimulates business-model innovation and bolsters competitive advantage. More importantly, as the internationalization of family firms intensifies, clarifying the role of digital transformation in overseas expansion helps firms accurately position target markets, leverage digital technologies to accelerate the internationalization process, and provide actionable guidance for strategic decision-making.

The innovations of this study are reflected in three dimensions. First, from the research perspective, this study focuses on the emerging phenomenon of digital transformation in family firms and examines its impact on internationalization strategies, thereby moving beyond the limitations of traditional research that concentrates on intergenerational succession, firm innovation, and related areas. Second, in terms of research design, this study constructs a baseline model of "digital transformation-internationalization" and introduces family involvement and second-generation involvement as moderating variables to systematically investigate the mechanisms through which heterogeneity affects this relationship. Third, with respect to research content, this study empirically tests the relationship between digital transformation and internationalization, analyzes the differential effects of contextual factors such as the institutional environment, the level of digital economy development, and factor intensity, and further explores the moderating roles of family involvement and second-generation involvement, thereby enriching the theoretical understanding of digital transformation in family firms.

II. Literature Review and Hypothesis Development

1. Digital Transformation and Internationalization of Family Firms

As a core strategic pathway for firms in the digital-economy era, digital transformation—

enabled by the deep penetration of cloud computing, big data, and artificial intelligence—is reshaping value-creation and innovation-driven models. On the production side, digitalization propels upgrades in mechanical automation; at the organizational level, it reconfigures supply-chain systems and optimizes value networks, thereby opening new channels for the internationalization of family firms[3]. Specifically, it manifests in:

(i) Embedding digital technologies in production and operations significantly enhances adaptability to host-country markets. Through real-time data interaction, it reduces geographic-distance constraints, strengthens coordination efficiency between domestic and overseas subsidiaries, and simultaneously lowers the threshold for technology transfer, supporting overseas factories in continuously delivering technological products and, overall, reducing the costs of internationalization strategy。

(ii) Digital transformation breaks the constraints of traditional business models and gives rise to more efficient organizational forms. Digital platforms have become core vehicles for restructuring global value chains [7]. The digitalization of management processes reduces procedural redundancy, while enhanced departmental autonomy provides flexible space for innovation and facilitates the cultivation of cross-functional talent with international capabilities [8].

(iii) Digital capabilities enhance firms' abilities to acquire resources and respond to risks. Real-time market monitoring compels improvements in innovative capacity, while data as a production factor empowers value creation and supports the systematic advancement of forward-looking digital strategies from capability building to governance systems. Ultimately, the accumulation of firm capabilities ensures the effective implementation of internationalization strategies. Based on this reasoning, this study proposes Hypothesis 1.

Hypothesis 1: Digital transformation in family firms significantly promotes the implementation of internationalization strategies.

2. Family Firms' Digital Transformation, Family Involvement, and Internationalization

Family involvement, as a core source of heterogeneity, influences the internationalization process through dual pathways—explicit channels (control over ownership and management) and implicit channels (family capital and cultural influence) [9]. Its moderating effects are mainly manifested in the following aspects:

At the level of digital transformation, excessive involvement of family members may inhibit innovation output. Effective strategy implementation requires top managers to possess digital expertise [10]; however, family executives may occupy key positions despite insufficient digital capabilities, thereby impeding digital transformation. Moreover, family logic tends to prioritize the preservation of socioemotional wealth, leading to risk-averse attitudes toward business model changes induced by digital transformation, while limited family resources further constrain cognitive flexibility [3].

At the level of internationalization decision-making, family ownership structures may give rise to agency problems. A high level of family ownership strengthens family control [11], which may induce opportunistic behavior among non-family shareholders, such as a preference for short-term investments at the expense of internationalization projects. In addition, family shareholders may increase agency costs through the expropriation of private benefits, thereby reducing investment efficiency and firm value and further weakening the likelihood of internationalization [12]. Moreover, the risks of control dilution and short-term financial pressure associated with internationalization conflict with family objectives of preserving socioemotional wealth—such as authority and social capital [13]—thereby ultimately inhibiting the implementation of internationalization strategies. Although the participation of non-family members in

governance can partially alleviate these constraints [14,15], the conservative orientation of family firms continues to constitute a barrier to internationalization [16,17]. Accordingly, this study proposes Hypothesis 2.

Hypothesis 2: Family involvement negatively moderates the effect of digital transformation on internationalization in family firms.

3. Family Firms' Digital Transformation, Second-Generation Involvement, and Internationalization

Unlike overall family involvement, the goals of second-generation successors are multifaceted[18], encompassing the need to sustain the family's enduring enterprise and to build personal legitimacy and authority, as well as developmental aims to enhance firm performance and expand market share. For reasons of legitimacy, the second generation is more inclined to open overseas markets through internationalization strategies, establishing their own authority while simultaneously accumulating the firm's socioemotional wealth. When the intention of family succession is strong, the senior generation—so as to ensure the perpetuity of the enterprise and preserve socioemotional wealth—tends to adopt long-term internationalization strategies and to extend the investment evaluation horizon, thereby creating material wealth, employment opportunities, and development platforms for the next generation[19].

The second generation's promotion of internationalization is primarily reflected in a long-term orientation and enhanced risk-taking capacity. As a signal of change, second-generation involvement may trigger sustained adjustments in organizational structure and in short- and long-term strategic decisions. Typically aiming at the enduring continuity of the enterprise and the transmission of corporate culture, they exhibit greater risk tolerance and a stronger willingness to undertake long-term strategic layouts[18], which makes internationalization strategies more readily accepted. Although family firms generally display lower levels of risk taking, a long-term orientation can increase risk-bearing capacity—second-generation succession is regarded as an expression of such a long-term orientation, and, once risk-taking capacity is strengthened, internationalization strategies are more likely to be implemented. In addition, internationalization aligns closely with the family's long-term orientation: although it requires substantial inputs of human and material resources at the outset, the long-term returns are significant, including market expansion, improved operating profits, and enhanced international brand recognition, which constitute long-horizon benefits.

Unlike other family members who are embedded in the firm primarily as shareholders, emphasize the stability of long-term interests, and exhibit risk aversion and resistance to internationalization [20], second-generation members serving as directors, supervisors, or senior executives possess managerial characteristics that are more conducive to internationalization. They typically prioritize the long-term survival of the firm and place greater emphasis on long-term strategic planning. At the same time, in preparation for intergenerational succession, their high-quality education and international experience shape distinct strategic decision-making attributes. Within the context of the new development paradigm and the domestic–international dual circulation framework, internationalization has become an unavoidable strategic issue; driven by the need to establish legitimacy [21], second-generation members are therefore more inclined to adopt internationalization as a preferred strategy.

Second-generation involvement also promotes digital transformation. With the arrival of a peak period of second-generation succession, such involvement has become increasingly prevalent [18,22], making associated changes in strategic decision-making, succession processes, and decision logics a central focus of research. Upper

echelons theory suggests that executives' background experiences and demographic characteristics exert a significant influence on corporate strategic choices [8,23]. In the era of the digital economy, next-generation family members who are proficient in digital technologies are becoming the primary source of digital capabilities within top management teams [24]. Specifically, the need of second-generation members to establish legitimacy and authority tends to stimulate higher levels of risk-taking and foster innovative behavior [18]. Although digital transformation is accompanied by substantial challenges, it also entails considerable value; consequently, second-generation members are more likely to support this strategy as a means of legitimization. Moreover, China's family-oriented culture and the tradition of paternalism facilitate the rapid acquisition of control by second-generation members, making "father–son co-governance" a common phenomenon. With support from the founding generation, second-generation members are better positioned to promote long-term strategic transformations, such as the integrated upgrading of digitalization and intelligence within firms. Finally, second-generation members typically receive higher education, and their overseas study and work experience endow them with an international perspective. Having grown up in an era of widespread digital technologies, they are more sensitive to data as a production factor and possess stronger digital capabilities, which in turn motivate them to support digital transformation strategies in family firms. Based on this reasoning, this study proposes Hypothesis 3.

Hypothesis 3: Second-generation involvement positively moderates the effect of digital transformation on internationalization in family firms.

III. Research Methods

1. Data Sources

This study builds on the research frameworks proposed by Qi Yudong and Xiao Xu (2022) and Chen Tang et al. (2022) [25,26], and uses Chinese listed family firms over the period 2013–2023 as the sample. Family firms are identified according to the following criteria: the ultimate controller is a single family natural person or family members with kinship ties who hold equity, participate in management, or exercise control over the listed company or its controlling shareholder. Data on digital transformation and internationalization are obtained from the CSMAR database. The sample is processed according to the following procedures: (1) firms in the financial industry are excluded due to the particularity of financial accounting; (2) ST-listed firms are excluded due to financial abnormalities; and (3) observations with missing key financial data are removed. The final sample consists of 20,642 firm-year observations.

2. Variable Selection

The dependent variable is the degree of internationalization. Following the measurement approaches of Li Mei and Chen Lu (2021) and Fang Hong and Wang Yimin (2021) [27,28], internationalization is comprehensively measured by the number of overseas subsidiaries (Branches) and the number of host countries (Countries). Higher values indicate a deeper level of internationalization and a more complete international structure. This measure captures not only the scale dimension of internationalization but also overseas revenue sources such as exports and direct and indirect investments, thereby providing a comprehensive reflection of the effectiveness of internationalization strategy implementation. In addition, this study supplements the analysis by employing indicators such as the proportion of overseas revenue or overseas assets; however, these measures are not used as mandatory indicators.

The key explanatory variable is the intensity of digital transformation (Digital), which is constructed using a keyword frequency approach. Specifically, corporate annual reports are examined to extract the frequencies of keywords across five categories—cloud computing technologies, big data technologies, artificial intelligence technologies, blockchain technologies, and digital technology applications—comprising 71 sub-indicators in total. Higher keyword frequencies indicate a greater intensity of digital transformation. This approach follows the dictionary construction logic proposed by Yuan Chun et al. (2021) and Lin Chuan (2022) [29,30], and offers greater dynamism and comprehensiveness than earlier measurement methods based on digital assets or employee information (Li Kunwang et al., 2015) or survey data (Wang Yongjin et al., 2017; Caselli, 2009) [31]. It should be noted that measuring the degree of digital transformation based on the frequency of keywords in annual reports may, to some extent, reflect firms' disclosure tendencies or rhetorical preferences, and thus may differ from the actual level of digital transformation practices. However, within the context of the present study, the use of keyword frequency in annual report texts remains highly applicable. First, as legally mandated disclosure documents, annual reports possess a high degree of standardization and authority, which ensures measurement consistency and data availability across large samples. Second, a substantial body of authoritative literature has adopted similar approaches to measure firms' digital transformation, rendering the measurement strategy employed in this study highly comparable.

Control variables are selected from two dimensions: family characteristics and firm characteristics. Family characteristics include the family identity of the board chair (Fam_C, coded as 1 if the chairperson is a family member and 0 otherwise), CEO duality (C&G, coded as 1 if the chairperson also serves as the general manager and 0 otherwise), ownership concentration (Top1, Top25), and the ownership balance ratio (Balance). Firm characteristics encompass firm size (Size), leverage (Lev), return on assets (ROA), and growth (Growth). Together, these variables control for the effects of family authority, decision-making

Table 3.1. Variables and Definitions

Variable Type	Variable Name	Code	Variable Definitions
Dependent Variable (DV)	Number of Overseas Branches	Branches	Number of Overseas Subsidiaries and Other Branches
	Number of Host Countries	Countries	Number of Host Countries
Explanatory Variable (IV)	Digital Transformation Intensity	Digital	Natural log of [1 + the total term frequency] of sub-indicator keywords under "cloud computing technology, big data technology, artificial intelligence technology, blockchain technology, and digital-technology applications" appearing in the firm's annual report within a given firm-year.
Control Variables (Controls)	Family Identity of Board Chair	Fam_C	Indicator variable equal to 1 if the firm's board chair is a family member; 0 otherwise.
	CEO Duality (Chair = CEO)	C&G	Indicator variable equal to 1 if the board chair concurrently serves as the general manager (CEO); 0 otherwise.
	Shareholding of 2nd-5th Largest Shareholders	Top25	Sum of the shareholding ratios of the 2nd to 5th largest shareholders.
	Shareholding of Largest Shareholder	Top1	Shareholding ratio of the largest shareholder.
	Firm Size	Size	Natural log of the firm's total assets in the observation year.
	Leverage (Debt-to-Asset Ratio)	Lev	Leverage: total liabilities divided by total assets in the observation year.
	Return on Assets	ROA	Asset Turnover: operating revenue divided by average total assets in the observation year.
	Firm Growth	Growth	Revenue Growth Rate: year-over-year growth of main (operating) revenue in the observation year.
	Ownership Balance Ratio	Balance	Ownership Balance Ratio: the sum of the 2nd-5th largest shareholders' holdings divided by the largest shareholder's holding.

concentration, capital structure, and profitability on internationalization strategies. Detailed variable definitions are provided in Table 3.1.

3. Model Specification

Because some family firms do not adopt internationalization strategies, the dependent variable takes the value of zero for a subset of observations and is thus censored. Accordingly, we employ a Tobit regression model left-censored at zero. To test the above hypotheses, we specify the following empirical model:

Models for Hypothesis 1: (3.1) and (3.2)

$$Branches = \beta_0 + \beta_1 Digital + \beta_2 Fam_{C+} \beta_3 C\&G + \beta_4 TOP25 + \beta_5 TOP1 + \beta_6 Balance + \beta_7 Size + \beta_8 Lev + \beta_9 ROA + \beta_{10} Growth + \epsilon \quad (3.1)$$

$$Countries = \beta_0 + \beta_1 Digital + \beta_2 Fam_C + \beta_3 C\&G + \beta_4 Top25 + \beta_5 Top1 + \beta_6 Balance + \beta_7 Size + \beta_8 Lev + \beta_9 ROA + \beta_{10} Growth + \epsilon \quad (3.2)$$

Models for Hypothesis 2: (3.3) and (3.4)

$$Branches = \beta_0 + \beta_1 Digital + \beta_2 Fam\_involvement + \beta_3 C.Digital \times C.Fam\_involvement + \beta_4 FamC + \beta_5 C\&G + \beta_6 TOP25 + \beta_7 TOP1 + \beta_8 Balance + \beta_9 Size + \beta_{10} Lev + \beta_{11} ROA + \beta_{12} Growth + \epsilon \quad (3.3)$$

$$Countries = \beta_0 + \beta_1 Digital + \beta_2 Fam\_involvement + \beta_3 C.Digital \times C.Fam\_involvement + \beta_4 FamC + \beta_5 C\&G + \beta_6 Top25 + \beta_7 Top1 + \beta_8 Balance + \beta_9 Size + \beta_{10} Lev + \beta_{11} ROA + \beta_{12} Growth + \epsilon \quad (3.4)$$

Models for Hypothesis 3: (3.5) and (3.6)

$$Branches = \beta_0 + \beta_1 Digital + \beta_2 Generation\_2 + \beta_3 C.Digital \times C.Generation\_2 + \beta_4 Fam_C + \beta_5 C\&G + \beta_6 TOP25 + \beta_7 TOP1 + \beta_8 Balance + \beta_9 ROA + \beta_{10} Growth + \epsilon \quad (3.5)$$

$$Countries = \beta_0 + \beta_1 Digital + \beta_2 Generation\_2 + \beta_3 C.Digital \times C.Generation\_2 + \beta_4 Fam_C + \beta_5 C\&G + \beta_6 TOP25 + \beta_7 TOP1 + \beta_8 Balance + \beta_9 ROA + \beta_{10} Growth + \epsilon \quad (3.6)$$

IV. Empirical Analysis Results

1. Empirical Analysis of Family Firms' Digital Transformation and Internationalization

1.1. Descriptive Statistics

The sample comprises 20,642 firm-year observations. For the core variables, the mean of Branches is 2.399 and the mean of Countries is 1.466, indicating that, on average, sample firms have more than two overseas branches and are distributed in approximately one country. Quantile analysis shows that over 75% of firms have Branches $\leq$ 2 and Countries $\leq$ 2, while fewer than 25% exhibit a more extensive internationalization presence.

The digital transformation indicator, Digital, has a mean value of 1.469 (natural-log transformed), indicating that firm annual reports contain, on average, approximately 1.5 digital-technology-related semantic terms. This suggests that most firms have engaged in digital transformation.

Regarding the control variables, in more than 87% of firms the board chair is a family member, and approximately 40% exhibit CEO duality. Ownership concentration is pronounced, with a mean Top1 of about 30% and a mean Top25 of about 20%. The mean value of the logarithm of firm size is 20, the average leverage ratio is 37%, the mean return on assets (ROA) is 5.3%, and the average revenue growth rate is 37%. In addition, ownership balancing is widely observed, as reflected by the Balance indicator.

Table 4.1 Descriptive Statistics

Variables	N	25% quantile	Mean	75% quantile	SD.	Min	Max
Branches	20642	0.000	2.399	2.000	5.769	0.000	145.000
Countries	20642	0.000	1.466	2.000	2.464	0.000	46.000
Digital	20642	0.000	1.469	2.485	1.441	0.000	6.301
Fam_C	20642	1.000	0.876	1.000	0.429	0.000	1.000
C&G	20642	0.000	0.398	1.000	0.489	0.000	1.000
Top25	20642	0.132	0.217	0.291	0.111	0.005	0.698
Topl	20642	0.218	0.326	0.413	0.142	0.022	0.990
Size	20642	20.993	21.770	22.404	1.106	14.940	27.010
Lev	20642	0.217	0.377	0.511	0.204	0.007	4.026
ROA	20642	0.030	0.053	0.092	0.116	-4.803	0.791
Growth	20642	-0.017	0.336	0.412	0.821	-0.776	5.586
Balance	20642	0.372	0.851	1.178	0.637	0.006	4.000

Table 4.2 Correlation Analysis

	Branches	Countries	Digital	Fam_C	C&G	Top25	Topl	Size	Lev	ROA	Growth	Balance
Branchers	1											
Countries	0.817***	1										
Digital	0.125***	0.167***	1									
Fam_C	-0.005	0.002	0.023***	1								
C&G	-0.021***	-0.008	0.059***	0.089***	1							
Top25-0	.022***-0	015**0	.015**	0.090***	0.027***	1						
Top1	0.001	-0.017**	-0.098***	0.082***	0.065***	-0.260***	1					
Size	0.376***	0.394***	0.124***	-0.039***	-0.109***	-0.102***	0.022***	1				
Lev	0.166***	0.161***	0.015**	-0.099***	-0.083***	-0.160***	-0.031***	0.442***	1			
ROA	-0.010	0.000	-0.059***	0.086***	0.015**	0.103***	0.151***	0.054***-0	.303***	1		
Growth	-0.003	-0.004	-0.009	-0.001	-0.010	-0.016**	0.002	-0.005	0.011	0.001	1	
Balance	-0.008	0.000	0.077***	0.014**	-0.031***	0.626***	-0.667***	-0.056***-	0.085***	-0.022***	-0.008	1

Note : ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively; the same applies hereinafter.

1.2. Correlation Analysis

The Pearson correlation matrix shows that Digital is positively and significantly correlated with Branches (r = 0.125) and Countries (r = 0.167) at the 1% level, providing preliminary support for a positive effect of digital transformation on internationalization. Correlations among control variables are generally low (all < 0.7), alleviating concerns about multicollinearity. Notably, Branches and Countries are highly correlated (r > 0.7); however, as complementary indicators of the degree of internationalization used in separate models, they do not pose a collinearity problem. Variables related to ownership structure (e.g., Top1 and Balance) exhibit moderate correlations, but remain below conventional thresholds and do not materially interfere with the core explanatory variable.

1.3. Regression Results and Analysis

The regression results based on the pooled model, controlling for industry and year fixed effects, show that the coefficients of Digital on Branches (β = 0.918) and Countries (β = 0.444) are both significant at the 1% level, confirming that digital transformation significantly promotes the implementation of internationalization strategies. After the inclusion of control variables, the coefficient of Digital decreases to 0.267 for Branches and 0.149 for Countries, yet remains significant at the 1% level, indicating that the inclusion of control variables—such as ownership structure and firm characteristics—does not alter the core relationship. With respect to the effects of control variables, Top25 (β > 0) indicates that a higher degree of ownership dispersion facilitates internationalization. Firm size (Size, β > 0) and leverage (Lev, β > 0) exert positive effects on internationalization through capital strength and

Table 4.3 Regression Results and Analysis

	Branches	Countries	Branches	Countries
Digital	0.918***	0.444***	0.267***	0.149***
	(15.676)	(17.431)	(4.927)	(6.439)
Fam_C			0.329**	0.092
			(2.312)	(1.506)
C&G			0.057	0.068
			(0.469)	(1.311)
Top25			2.312***	1.395***
			(2.644)	(3.742)
Top1			0.817	-0.104
			(1.290)	(-0.383)
Size			3.731***	1.670***
			(54.852)	(57.390)
Lev			0.469	0.297*
			(1.252)	(1.864)
Roa			-1.723***	-0.468**
			(-3.181)	(-2.018)
Growth			0.002	0.002
			(0.824)	(1.507)
Balance			-0.280	-0.212**
			(-1.435)	(-2.550)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Constants	-10.619***	-4.535***	-89.546***	-39.635***
	(-7.804)	(-7.677)	(-46.598)	(-48.275)
N	20642	20642	20642	20642
PseudoR²	0.025	0.035	0.081	0.097

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively; t-values are reported in parentheses.

risk-bearing capacity, respectively. The positive effects of ROA and Growth are also consistent with expectations.

2. Empirical Analysis of Family Firms' Digital Transformation, Family Involvement, and Internationalization

2.1. Moderating Effect of Family Involvement

The moderating-effect models indicate that the main effects of Digital on Branches (β = 0.284) and Countries (β = 0.203) are significant ($p < 0.01$). The key interaction terms—Digital × Ratio (managerial involvement) and Digital × Ownership (ownership involvement)—are both negative (β = −0.414, −0.262) and significant ($p < 0.05$ or $p < 0.01$), confirming that family involvement negatively moderates the positive relationship between digital transformation and internationalization. Further analysis shows that when family involvement is lower, the positive effect of digital transformation is more pronounced; as involvement increases, the moderating effect gradually weakens.

2.2. Robustness Checks

(1) Lagging the dependent variable by one period. When the dependent variable is lagged by one period, the lagged terms LBranches and LCountries remain positively and significantly associated with Digital (β > 0), and the coefficients of the interaction terms remain significantly negative ($p < 0.05$), ruling out reverse causality and supporting the stability of the original hypotheses.

(2) Expanding the sample window. We extend the sample period from 2011-2021 to 2009-2023. The regression results remain consistent with the main analysis: the main effect of Digital and the negative moderating effects of the interaction terms are all significant ($p < 0.05$ or $p < 0.01$), confirming robustness over a longer time horizon.

3. Empirical Analysis of Family Firms' Digital Transformation, Second-generation Involvement, and Internationalization.

3.1 Moderating Effect of Second-Generation Involvement

Table 4.4. Results for the negative moderating effect of family involvement

	Branches	Countries	Branches	Countries
Digital	0.284***	0.203***	0.414***	0.262***
	(3.338)	(5.444)	(3.074)	(4.429)
Ratio	236.024***	130.044***		
	(3.603)	(4.532)		
Ownership			1.688**	0.972***
			(2.339)	(3.068)
C.Digital*C.Ratio	-84.947***	-48.412***		
	(-2.669)	(-3.467)		
C.Digital*C.ownership			-0.724**	-0.373***
			(-2.375)	(-2.787)
Fam_C	0.084	0.011	0.120	0.017
	(0.471)	(0.146)	(0.687)	(0.214)
C&G	-0.227	0.004	-0.118	0.029
	(-1.505)	(0.063)	(-0.827)	(0.462)
Top25	0.973	0.863*	0.754	0.588
	(0.947)	(1.917)	(0.689)	(1.224)
Topl	1.419*	0.254	0.917	-0.147
	(1.879)	(0.772)	(1.007)	(-0.368)
Size	3.477***	1.748***	3.472***	1.591***
	(42.133)	(47.290)	(42.014)	(43.725)
Lev	1.517***	0.788***	1.507***	0.783***
	(3.352)	(3.978)	(3.331)	(3.941)
Roa	-0.935	-0.102	-0.883	-0.081
	(-1.320)	(-0.336)	(-1.246)	(-0.260)
Growth	0.002	0.002	0.002	0.002
	(0.682)	(1.381)	(0.713)	(1.431)
Balance	0.058	-0.084	0.040	-0.095
	(0.244)	(-0.801)	(0.169)	(-0.900)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Constant	-83.092***	-37.648***	-83.114***	-37.679***
	(-35.411)	(-36.444)	(-35.446)	(-36.501)
N	13955	13955	13955	13955
PseudoR²	0.066	0.088	0.066	0.088

Table 4.5. Robustness checks for family involvement

	L.Branches	L.Countries	L.Branches	L.Countries
Digital	0.218**	0.182***	0.354**	0.236***
	(2.404)	(4.582)	(2.435)	(3.697)
Ratio	202.330***	123.386***		
	(2.772)	(3.866)		
Ownership			1.771**	1.003***
			(2.166)	(2.798)
C.Digital*C.Ratio	-63.434*	-43.641***		
	(-1.845)	(-2.897)		
C.Digital*C.ownership			-0.650*	-0.342**
			(-1.929)	(-2.318)
Controls	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
industry	Yes	Yes	Yes	Yes
Constant	-79.035***	-36.178***	-79.147***	-36.257***
	(-30.563)	(-31.826)	(-30.610)	(-31.918)
N	11562	11562	11562	11562
PseudoR²	0.066	0.089	0.066	0.089

The moderating-effect models show that the main effects of Digital on Branches (β = 0.873) and Countries (β = 0.484) are significant (p < 0.01). The coefficients on the interaction term Digital × Generation_2 (second-generation involvement) are positive (β = 0.146, 0.109) and significant (p < 0.10

Table 4.6. Robustness checks with an expanded sample window

	Branches	Countries	Branches	Countries
Digital	0.306***	0.210***	0.425***	0.265***
	(3.724)	(5.780)	(3.309)	(4.667)
Ratio	248.802***	133.345***		
	(4.018)	(4.888)		
Ownership			1.450**	0.858***
			(2.148)	(2.880)
C.Digital*C.Ratio	-88.748***	-48.914***		
	(-2.897)	(-3.616)		
C.Digital*C.ownership			-0.715**	-0.367***
			(-2.456)	(-2.854)
Controls	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Constant	-80.814***	-36.738***	-80.789***	-36.751***
	(-35.153)	(-36.076)	(-35.196)	(-36.144)
N	15082	15082	15082	15082
PseudoR²	0.071	0.093	0.070	0.093

Table 4.7. Positive moderating effect of second-generation involvement

	Full-Sample Test of the Moderating Effect of Second-Generation Involvement		Subsample Test of Second-Generation Involvement	
	Branches	Countries	Branches	Countries
Digital	0.873***	0.484***	0.546***	0.356***
	(23.204)	(23.512)	(6.224)	(7.440)
Generation_2	0.484***	0.228***		
	(3.086)	(2.658)		
C.Digital*C.Generation_2	0.146*	0.109**		
	(1.735)	(2.382)		
Fam_C	0.024	0.066	-0.327	-0.195
	(0.206)	(1.038)	(-1.379)	(-1.573)
C&G	-0.325***	-0.115**	-0.828***	-0.390***
	(-3.280)	(-2.129)	(-4.059)	(-3.512)
Balance	0.023	-0.035	0.845**	0.424**
	(0.144)	(-0.379)	(2.398)	(2.203)
Top25	-1.404*	-0.632	-4.652***	-2.247***
	(-1.922)	(-1.582)	(-3.127)	(-2.770)
Top1	-0.096	-0.301	0.983	0.534
	(-0.180)	(-1.031)	(0.904)	(0.898)
ROA	-0.121	0.324	4.039***	2.150***
	(-0.185)	(0.906)	(2.959)	(2.885)
Growth	-0.402***	-0.272***	-0.094	-0.108
	(-7.081)	(-8.712)	(-0.771)	(-1.605)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Constant	-0.999***	-0.282**	-35.593	-17.910
	(-3.945)	(-2.040)	(-0.021)	(-0.020)
N	18202	18202	4446	4446
PseudoR²	0.034	0.041	0.041	0.048

or $p < 0.05$), confirming a positive moderating effect of second-generation involvement. Subsample tests indicate that among firms with second-generation involvement, the promotive effect of Digital on internationalization remains significant ($\beta = 0.546, 0.356$; $p < 0.01$).

3.2 Robustness Checks

(1) Lagging the dependent variable by one period. The lagged terms exhibit positive and significant correlations with Digital, Generation_2, and the interaction term ($\beta > 0$; $p < 0.10$ or $p < 0.01$), supporting the stability of the positive moderating effect.

Table 4.8. Robustness checks for second-generation involvement

	Full-Sample Test of the Moderating Effect of Second-Generation Involvement		Subsample Test of Second-Generation Involvement	
	L.Branches	L.Countries	L.Branches	L.Countries
Digital	0.793***	0.435***	0.507***	0.340***
	(19.124)	(19.444)	(5.557)	(6.745)
Generation_2	0.405**	0.175*		
	(2.365)	(1.857)		
C.Digital*C.Generation_2	0.160*	0.123**		
	(1.772)	(2.519)		
Controls	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
	-1.135***	-0.320**	-30.368	-16.804
Constant	(-4.034)	(-2.113)	(-0.024)	(-0.012)
N	15015	15015	3849	3849
PseudoR²	0.035	0.043	0.044	0.051

Table 4.9. Robustness checks with an expanded sample window

	Full-Sample Test of the Moderating Effect of Second-Generation Involvement		Subsample Test of Second-Generation Involvement	
	Branches	Countries	Branches	Countries
Digital	1.273***	0.621***	0.820***	0.361***
	(25.009)	(27.625)	(5.699)	(6.797)
Generation_2	0.918***	0.409***		
	(4.377)	(4.419)		
C.Digital*C.Generation_2	0.267**	0.091*		
	(2.324)	(1.796)		
Controls	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Constant	-3.354***	-0.988***	-57.150	-20.439
	(-10.131)	(-6.764)	(-0.022)	(-0.027)
N	20,237	20,237	4,837	4,837
PseudoR²	0.033	0.045	0.036	0.053

(2) Expanding the sample window. Finally, we verify the robustness of the positive moderating effect of second-generation involvement by expanding the sample window. The coefficient of the interaction term remains significantly positive ($p < 0.01$), and the subsample regression results are consistent, confirming robustness under a broader sample.

V. Conclusions and Policy Recommendations

1. Conclusions

Amid the wave of the digital economy, the strategic pathway by which family firms leverage digital transformation to meet challenges and seize opportunities has become a focal topic. Using China's listed family enterprises during 2013-2023 as the sample, this paper systematically examines the impact of digital transformation on internationalization and the moderating roles of family involvement and second-generation involvement. The core findings are as follows:

(1) Digital transformation significantly promotes internationalization. By increasing the number of overseas branches and the breadth of host-country distribution, digital transformation directly enhances the scale and depth of family firms' internationalization, confirming the positive enabling effect of digital technologies on internationalization.

(2) Family involvement exerts a negative moderating effect. As a core heterogeneous

attribute of family firms, family involvement—by strengthening socioemotional wealth preferences, suppressing exploratory innovation output, and affecting board governance structures—weakens the promotive effect of digital transformation on internationalization.

(3) Second-generation involvement produces a positive moderating effect. Serving as a carrier of long-term orientation, the second generation—by enhancing risk-taking capacity, introducing a global vision, and advancing the transmission of digital capabilities—reinforces the synergy between digital transformation and internationalization, with the effect being especially pronounced in the context of intergenerational succession.

2. Recommendations

(1) Build external cooperation networks to resolve the "unable to transform" challenge. Family firms should proactively align with external resources—e.g., collaborate with technology companies to construct transformation architectures (as in the BYD-Siemens case)—and leverage government support policies to refine pathways for applying data factors. In parallel, use standards and guidelines to strengthen internal organizational openness and achieve targeted transformation.

(2) Balance the governance structure to break through the "unwilling to transform" dilemma. In digital transformation, coordinate data and technological factors in an integrated manner. By balancing the interests of family executives and professional managers and optimizing decision-making procedures, improve innovation efficiency and internationalization performance, thereby forming a virtuous cycle of "efficiency gains with controllable costs."

(3) Precisely align technology introduction and the motives for internationalization. In light of industry differences in factor intensity, introduce suitable digital technologies to drive production-model innovation. At the same time, reassess the motives for internationalization under the digital-economy environment—shifting from reliance on low-cost labor to a focus on high-value markets—to reduce strategic risk and cost.

(4) Optimize the governance system to integrate family socioemotional aims with digital needs. While preserving family ethos and culture, establish a digital governance system to advance managerial reform. Through cultivating digital capabilities, bringing in professional managers, and dynamically adjusting the degree of family involvement, achieve the dual goals of protecting socioemotional wealth and enhancing competitive advantage.

REFERENCES

[1] Chen, T.; Chen, G.; Chen, P.-Y., "China's Digital Transformation: Evolution, Operating Mechanism, and Prospects," China Science and Technology Forum, 2022(1), pp. 139-149, 2022.

[2] Li, Y.-S.; Yang, S.-J.; Lu, T., "Internationalization Strategy Choice of Family Firms from the Perspective of Socioemotional Wealth," Leadership Science, 2018(29), pp. 29-31, 2018.

[3] Wang, Z.-T.; Xue, L.-L., "Family Involvement, Socioemotional Wealth, and the Internationalization of Chinese Family Firms: Evidence from 289 Listed Firms," International Business (Journal of UIBE), Vol. 2018, No. 2, pp. 143-156, 2018.

[4] Yang, X.-K.; Liu, J.; Tang, Y., "CEO Type, Strategic Choices, and Performance in Family Firms: Evidence from Chinese Listed Family Companies," Economic Management Journal, Vol. 43, No. 11, pp. 89-103, 2021.

[5] Ni, K.-J.; Liu, X.-Y., "Digital Transformation and Enterprise Growth: Theoretical Logic and China's Practice," Management World (Economic Management), Vol. 43, No. 12, pp. 79-97, 2021.

[6] Levushkin, A. N.; Matveev, P. A.; Tolstova, I. A.; Mitsyk, G. Y.; Avilova, N. L., "A Prospects for the Development of Family Entrepreneurship in the Digital Transformation of the Economy," International Journal of Recent Technology and Engineering, Vol. 8, No. 4, pp. 6085-6088, November 2019. DOI: 10.35940/ijrte.D8647.118419.

[7] Li, Y.-S.; Yan, X.-J.; Dong, S.-H., "Heterogeneity of Family Involvement and Its Relationship with Innovation Performance in Family Firms," Science & Technology Progress and Policy, 2020(24), pp. 90-98, 2020.

[8] Yang, Z.-Q.; Wang, Y.-J., "Family Involvement and Enterprise Internationalization: The Moderating Roles of Political Connections and Institutional Investors," Finance & Economics,

Vol. 2018, No. 12, pp. 65-71, 2018.

[9] Singh, A.; Hess, T., "How Chief Digital Officers Promote the Digital Transformation of Their Companies," MIS Quarterly Executive, Vol. 16, No. 1, pp. 1-17, 2017.

[10] Lu, T.; Dang, Y., "Corporate Governance and Technological Innovation: A Cross-Industry Comparison," Economic Research Journal, 2014(6), pp. 115-128, 2014.

[11] Sciascia, S.; Mazzola, P.; Astrachan, J. H.; Pieper, T. M., "Family Involvement in the Board of Directors: Effects on Sales Internationalization," Journal of Small Business Management, Vol. 51, No. 1, pp. 83-99, 2013. DOI: 10.1111/j.1540-627X.2012.00373.x

[12] Ceipek, R.; Hautz, J.; De Massis, A., "Digital Transformation Through Exploratory and Exploitative Internet of Things Innovations: The Impact of Family Management and Technological Diversification," Journal of Product Innovation Management, Vol. 38, No. 1, pp. 142-165, 2021. DOI: 10.1111/jpim.12551

[13] Yang, J.-F.; Meng, X.-B.; Wang, C.-M., "Effects of Family Firm Characteristics on Internationalization Process: An Organizational Learning Perspective," Foreign Economics & Management, Vol. 2008, No. 4, pp. 39-46, 2008.

[14] Liu, B.-L.; Lu, C.-J., "Ownership Configuration Effects of Chinese Family Firms," Economic Research Journal, 2016(11), pp. 140-152, 2016.

[15] Lin, C., "Digital Transformation and Stock Price Crash Risk," Securities Market Herald, 2022(6), pp. 47-57, 2022.

[16] Beck, L.; Janssens, W.; Debruyne, M.; Lommelen, T., "A Study of the Relationships Between Generation, Market Orientation, and Innovation in Family Firms," Family Business Review, Vol. 24, No. 3, pp. 252-272, 2011. DOI: 10.1177/0894486511409210.

[17] Berrone, P.; Cruz, C.; Gomez-Mejia, L. R., "Socioemotional Wealth in Family Firms: Theoretical Dimensions, Assessment Approaches, and Agenda for Future Research," Family Business Review, Vol. 25, No. 3, pp. 258-279, 2012. DOI: 10.1177/0894486511435355

[18] Zhu, X.-M.; Lin, X.-Y., "Enterprise Digital Transformation: Literature Review and an Integrative Framework," R&D Management, 2022(4), pp. 141-155, 2022.

[19] Xu, W.; Ma, S.-Y.; Wang, C.-Z., "Family Involvement, State Ownership, and the Internationalization of Chinese Family Firms," Economic Management Journal, 2020(10), pp. 102-119, 2020.

[20] Yuan, C.; Xiao, T.-S.; Geng, C.-X.; Sheng, Y., "Digital Transformation and Enterprise Division of Labor: Specialization or Vertical Integration?," China Industrial Economics, 2021(9), pp. 137-155, 2021.

[21] Li, X.-S.; Dang, L.; Zhao, C.-Y., "Digital Transformation, Integration into Global Innovation Networks, and Innovation Performance," China Industrial Economics, 2022(10), pp. 43-61, 2022.

[22] Fernandez, Z.; Nieto, M. J., "Impact of Ownership on the International Involvement of SMEs," Journal of International Business Studies, Vol. 37, No. 3, pp. 340-351, 2006. DOI: 10.1057/palgrave.jibs.8400196.

[23] Kim, H.; Kim, H.; Hoskisson, R. E., "Does Market-Oriented Institutional Change in an Emerging Economy Make Business-Group-Affiliated Multinationals Perform Better? An Institution-Based View," Journal of International Business Studies, Vol. 41, No. 7, pp. 1141-1160, September 2010. DOI: 10.1057/jibs.2010.17.

[24] Bau, M.; Block, J.; Discua Cruz, A.; Naldi, L., "Bridging Locality and Internationalization: A Research Agenda on the Sustainable Development of Family Firms," Entrepreneurship & Regional Development, Vol. 33, Nos. 7-8, pp. 477-492, August 2021. DOI: 10.1080/08985626.2021.1925846.

[25] Sun, Y.-P., "Enterprise Digital Transformation: Characteristics, Essence, and Path," Enterprise Economy, 2021(12), pp. 35-42, 2021.

[26] Nambisan, S., "Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship," Entrepreneurship Theory and Practice, Vol. 41, No. 6, pp. 1029-1055, 2017. DOI: 10.1111/etap.12254.

[27] Kellermanns, F. W.; Eddleston, K. A.; Sarathy, R.; Murphy, F., "Innovativeness in Family Firms: A Family Influence Perspective," Small Business Economics, Vol. 38, No. 1, pp. 85-101, January 2012. DOI: 10.1007/s11187-010-9268-5.

[28] Basly, S.; Hammouda, A., "Family Businesses and Digital Entrepreneurship Adoption: A Conceptual Model," The Journal of Entrepreneurship, Vol. 29, No. 2, pp. 326-364, 2020. DOI: 10.1177/0971355720930573.

[29] Fernandez, Z.; Nieto, M. J., "Impact of Ownership on the International Involvement of SMEs," Journal of International Business Studies, Vol. 37, No. 3, pp. 340-351, 2006. DOI: 10.1057/palgrave.jibs.8400196.

[30] Lee, Y.-Y.; Falahat, M.; Sia, B.-K., "Impact of Digitalization on the Speed of Internationalization," International Business Research, Vol. 12, No. 4, pp. 1-11, April 2019. DOI: 10.5539/ibr.v12n4p1.

[31] Fang, H.; Wang, Y.-M., "How Do Female CEOs Influence the Pace of Chinese Firms' Internationalization?," Foreign Economics & Management, Vol. 43, No. 1, pp. 73-91, 2021.

[32] Qi, Y.-D.; Xiao, X., "Enterprise Management Transformation in the Digital Economy Era," Management World, Vol. 36, No. 6, pp. 135-152, 2020.

[33] Wang, J.-A.; Li, D.-M., "A Review of Top Management Team Dynamics: A Process Model Based on Upper Echelons Theory," Foreign Economics & Management, Vol. 39, No. 10, pp. 40-52,

2017.

[34] Wang, K.; Xu, Y.-P., “Top Management Characteristics and Compensation in Family Firms,” Nankai Business Review, 2015 (4), pp. 15−25, 2015.

[35] Li, J.; Yang, X.-R.; Tan, H.-B., “A Review and Future Prospects of Family Firm Internationalization Research,” 36. South China Journal of Economics, Vol. 2016, No. 5, pp. 62−86, 2016.

[36] Li, M.; Chen, L., “Overseas R&D Geographic Diversification and Innovation Performance: An Organizational Learning Perspective,” Studies in Science of Science, Vol. 39, No. 5, pp. 940−950, 2021.

[37] Li, X.-C.; Han, J.; Li, W.-W., “Succession or New Territory? Legitimacy Construction of Second-Generation Heirs in Family Firms,” Management World, 2015(6), pp. 110−124, 2015.

[38] Li, X.-C.; He, X.-G.; Zou, L.-K., “Family Business Research: Theoretical Progress and Future Prospects,” Management World, 2020(11), pp. 207−229, 2020.

[39] Kotlar, J.; De Massis, A.; Fang, H.; Frattini, F., “Strategic Reference Points in Family Firms,” Small Business Economics, Vol. 43, No. 3, pp. 597−619, 2014. DOI: 10.1007/s11187-014-9556-6.

[40] Kotlar, J.; De Massis, A., “Goal Setting in Family Firms: Goal Diversity, Social Interactions, and Collective Commitment to Family-Centered Goals,” Entrepreneurship Theory and Practice, Vol. 37, No. 6, pp. 1263−1288, 2013. DOI: 10.1111/etap.12065.

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